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File: PGPB

Apr 18, 2002

DOCUMENT-IDENTIFIER: US 20020046346 A1

TITLE: Electronic medical records system

Abstract Paragraph:

A medical records system that creates and maintains all patient data electronically. The system captures patient data, such as patient complaints, lab orders, medications, diagnoses, and procedures, at its source at the time of entry using a graphical user interface having touch screens. Using pen-based portable computers with wireless connections to a computer network, authorized healthcare providers can access, analyze, update and electronically annotate patient data even while other providers are using the same patient record. The system likewise permits instant, sophisticated analysis of patient data to identify relationships among the data considered. Moreover, the system includes the capability to access reference databases for consultation regarding allergies, medication interactions and practice guidelines. The system also includes the capability to incorporate legacy data, such as paper files and mainframe data, for a patient.

Summary of Invention Paragraph:

[0010] The present invention likewise provides instant access to a patient's electronic medical record by authorized healthcare providers from any geographical location. Thus, the EMR system enables authorized healthcare providers to access and update patient files using wireless pen-based personal computers. To enable complete replacement of physical records, the present invention permits healthcare providers, such as physicians or nurse practitioners, to electronically annotate patient data. Thus, a healthcare provider can acknowledge reviewing patient data, provide instructions, such as prescriptions for medication to administer to a patient, and approve recommendations for treatment by other providers, all by electronically annotating a patient's record. In addition, authorized healthcare providers can access a record while other providers use the same record allowing for real-time collaboration. The availability of electronic data permits instant, sophisticated analysis of patient data. Moreover, the EMR system enables enhanced analysis of patient data by providing access to reference databases for diagnosis, procedures and medication.

Summary of Invention Paragraph:

[0015] Yet another aspect of the present invention includes a method of retrieving patient data in an electronic medical records system having a patient data repository, comprising the steps of obtaining a patient identifier, locating a patient record corresponding to the patient identifier in the patient data repository, and determining the location of the patient data within the patient record.

Detail Description Paragraph:

[0057] With reference to FIG. 13, upon creation of a patient record, the patient locator 200 creates a patient data structure 210 having the PID and the patient's name. In a preferred embodiment, the patient data structure 210 includes pointers to data structures having data within a patient record captured by the point of care system 100 and incorporated from external sources (e.g., a digital x-ray image file stored in a raster pixel format). Thus, the patient data structure 210 maintains a pointer to an interface files structure 211 having patient data

transmitted from external sources. The patient data structure 210 likewise maintains pointers to a clinical data structure 212, a progress note structure 213 and an encounter data structure 214. These data structures include patient data captured by the clinical data capture 142, progress notes 144 and encounter data capture 146, respectively (FIG. 4). In another preferred embodiment, the patient data structure 210 may include pointers to data structures having data generated by the reference database 104 and transferred by the legacy data system 106. Thus, the patient data structure 210 may maintain pointers to a medication data structure 215 and a guideline data structure 216. As described above, the medication 215 and guideline 216 data structures include patient data captured by the medication data capture 148 and the practice guideline 149, respectively. In this embodiment, a reference data structure 217 may maintain pointers to the encounter data structure 214 and to the medication data structure 215 for access to reference information contained in a reference database 104. Lastly, the patient data structure 210 may maintain a pointer to a legacy files structure 219 having patient data transmitted from the legacy data system 106, such as an image of a patient chart.

Detail Description Paragraph:

[0058] FIG. 14 shows a logical view of a patient record 220 corresponding to the structure illustrated in FIG. 13. The patient record 220 includes the PID generated by the patient locator 200 (FIG. 12) in the patient data repository 102 (FIG. 1). In addition, the patient record 220 includes patient data in a variety of data types generated by healthcare providers. Thus, the patient record includes text data 223, such as electronic mail and word processing documents from other healthcare providers, image data 225, such as scanned physical documents, x-rays and CATSCANS, and audio data 227, such as a physician's dictation and voice mail. Lastly, the patient record 220 has data tables 229, such as a physician's ICD9 diagnosis codes and CPT procedure codes. In view of the structure of a patient record 220, referring back to FIG. 12, the data manager 202 uses the PID to store and retrieve patient records. Moreover, the data interface 204 permits communication with external sources to obtain patient data, such as demographic data, laboratory test results and x-ray images, and to transfer patient information, such as prescriptions for medication, from the patient data repository 102 to external healthcare providers.

Detail Description Paragraph:

[0078] Using the present invention, healthcare providers enter patient data immediately at the point of care. Thus, the EMR system captures each piece of data at its source at the time of entry, including time and healthcare provider identification. The EMR system thus provides a complete audit trail for all patient data. The audit trail, in turn, permits inexpensive analysis of outcomes, utilization and compliance. For example, outcomes typically refer to the effectiveness of a treatment plan. Thus, the EMR system enables a healthcare provider to analyze patient recovery times and incurred costs to measure the efficacy of the treatment plan. Similarly, utilization typically refers to how well available resources are utilizing time. Thus, the EMR system provides the capability to analyze utilization of physicians, nurses, staff and equipment as well as time utilization for patients, such as wait times for referrals, lab results and physician examinations. Lastly, compliance typically refers to conformance with government and accreditation standards and regulations. The EMR system provides tools to enable healthcare providers to measure conformance to standards and regulations. To facilitate entry of patient data at the point of care, the invention provides touch screens for entry of lab orders, medications, diagnoses and procedures. The invention likewise provides instant access to a patient's electronic medical record by authorized healthcare providers from any geographical location. Thus, the EMR system enables authorized healthcare providers to access and update patient files using wireless pen-based personal computers. In addition, authorized healthcare providers can access a record while other healthcare providers use the same record. By providing simultaneous access to patient data, the present invention enables real-time collaboration among multiple

healthcare providers.

Detail Description Paragraph:

[0079] The availability of electronic data permits instant, sophisticated analysis of a patient's clinical data. Thus, the EMR system can create graphs of a patient's vital signs and lab results or the system can provide an analyze patient information to identify medication interactions and allergies. Using the present invention, a healthcare provider can likewise select, sort, and analyze patient data to identify relationships among the data considered. In addition, the EMR system provides flexibility in the creation and maintenance of patient data repositories. Thus, the present invention can support a large healthcare enterprise distributed across a large geography as well as a single physician office. Moreover, the present invention ensures patient confidentiality through the use of a tiered password system. The EMR system provides several levels of security for access to patient data. For example, a system administrator may have global password access to any patient data for system maintenance and debug purposes, whereas physicians may have access only to patient records within their specialty and nurses and staff may have access to only those patient records within their immediate care. In addition, a patient may request restricted access to their data by only certain personnel. Thus, in contrast to physical records, the EMR system provides superior protection of patient data.

CLAIMS:

18. A method of retrieving patient data in an electronic medical records system having a patient data repository, comprising: obtaining a patient identifier; locating a patient record corresponding to the patient identifier in the patient data repository, wherein the patient data repository includes a cache and a data archive; determining the location of the patient data within the patient record; and delivering the patient data.

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